

This listing of claims will replace all prior versions, and listings of claims in the application.

In the Claims:

1. (withdrawn) A method for detecting an isolate of a *B. cereus* group, in a sample, the method comprising:

- (a) placing on a microchip oligonucleotide probes targeted to rRNA sequences wherein at least one mismatch is sufficient to discriminate among the *B. cereus* subgroups;
- (b) providing conditions for hybridization of the probes with rRNA from the sample; and
- (c) analyzing hybridization signals in the microchip from which the particular isolate is detected.

2. (withdrawn) The method of claim 1, wherein the oligonucleotide probes are directed to 16S rRNA and 23S rRNA and the corresponding target sequences are shown in FIG. 1 and FIG. 2.

3. (withdrawn) The method of claim 1, wherein the probes are labeled.

4. (withdrawn) The method of claim 3, wherein the labels are selected from the group consisting of fluorescent dyes, radio isotopes, immunological labels, immuno-chemical labels and gold particles.

5. (withdrawn) The method of claim 1, wherein the oligonucleotide probes selected from the group consisting of sequences listed in Table 5 discriminate subgroups Anthracis, Cereus A, Cereus B, Thuringiensis A, Thuringiensis B, Mycoides A and Mycoides B.

6. (withdrawn) The method of claim 1, wherein pairs of oligonucleotide probes that discriminate subgroups *Anthraxis* from *Cereus A* are ps21/ps22, ps23/ps24, 23F13/23F14, 23F15/23F16, and C9/C10.

7. (withdrawn) The method of claim 1, wherein a ratio of hybridization signals of oligonucleotide probes ps17 and ps18 discriminates between *B. anthracis* Ames and *B. cereus* 9620.

8. (withdrawn) The method of claim 1, wherein the oligonucleotide probes are ps21,

ps22, ps23, and ps24 to discriminate *B. anthracis* Sterne from *B. cereus* HER 1414 and *B. thuringensis* B8.

9. (withdrawn) The method of claim 1, wherein the oligonucleotide probes are ps7, ps8, and ps9 to discriminate *B. thuringensis* 4Q281 from other *B. cereus* subgroup isolates.

10. (currently amended) A microarray that comprises oligonucleotide probes selected from the group consisting of sequences designated: (~~SEQ ID NOS 70-95 respectively in order of appearance~~)

| Oligonucleotide Name | 5' to 3' Sequence |
|----------------------|--|
| ps1 | AGC TCT TAA TCC ATT CGC TC |
| ps2 | AGC TCT eAA TCC ATT CGC TC |
| ps3 | TAA CTT CAT AAG AGC AAG CT |
| ps4 | TAA CTT CtT gAG AGC AAG CT |
| ps5 | CCG CTA ACT TCA TAA GAG CA (SEQ ID NO: 74) |
| ps6 | CCG CTA ACT TCt TgA GAG CA (SEQ ID NO: 75) |
| ps7 | GAA CCA TGC GGT TCA AAA TG |
| ps8 | GAA CCA TGC aGT TCA AAA TG |
| ps9 | GAA CCA TGC GGT TCA AAA TG |
| ps10 | GeA CCA TGC GGT gCA AAA TG |
| ps11 | CAA TTT CGA ACC ATG CGG TT |
| ps12 | gAA TTT CGe ACC ATG CGG Tg |
| ps13 | GCC TTT CAA TTT CGA ACC AT |
| ps14 | GCC TTT gAA TTT CGe ACC AT |
| ps15 | CGA AGC CGC CTT TCA ATT TC |
| ps16 | CGA AGC CGC CTT TgA ATT TC |
| ps17 | TCT AGG GTT GTC AGA GGA TG (SEQ ID NO: 86) |
| ps18 | TCT AGG GTT tTC AGA GGA TG (SEQ ID NO: 87) |
| ps19 | TCT GCT CCC GAA GGA GAA GC (SEQ ID NO: 88) |
| ps20 | TCT GCc CCC GAA GGg GAA GC (SEQ ID NO: 89) |
| ps21 | CAG CTC AGC CTT CAC GAT AA (SEQ ID NO: 90) |
| ps22 | CAG CTC AGC CTT tAC GAT AA (SEQ ID NO: 91) |
| ps23 | CAC TGA TAC CAT TG GTA TCA |
| ps24 | CAC TGA TAC CAT TeG GTA TCA |
| ps25 | CGGTCTTGcAGCTCTTTGTA |

| | |
|-----------------|--|
| ps26 | ATTCCAGCTTCACGCAGTC |
| <u>23F1</u> | <u>TTT GGG CTA TGT TCC GTT TC (SEQ ID NO: 126) and</u> |
| <u>23F2</u> | <u>TTT GGG CTA GAT TCC GTT TC (SEQ ID NO: 127)</u> |

11. (currently amended) The microarray of claim 10, wherein the oligonucleotides are arranged in a specific pattern wherein I, II, III and IV are columns and A, B, C, D, E, and F are rows in the microchip:

| | <i>I</i> | <i>II</i> | <i>III</i> | <i>IV</i> |
|---|----------------|-----------|----------------|-----------|
| A | ps19 | ps20 | ps7 | ps8 |
| B | ps15 | ps16 | ps3 | ps4 |
| C | ps9 | ps10 | ps5 | ps6 |
| D | ps13 | ps14 | ps1 | ps2 |
| E | ps11 | ps12 | - | - |
| F | - | - | ps17 | ps18 |

12. (currently amended) A microarray as in claim 10, wherein the oligonucleotides are arranged in pairs: ps19 and ps20; ~~ps15 and ps16; ps9 and ps10; ps13 and ps14; ps11 and ps12; ps7 and ps8; ps3 and ps4;~~ ps5 and ps6; ~~ps1 and ps2;~~ ps17 and ps18; ps21 and ps22; 23F1 and 23F2.

13. (canceled).

14. (canceled).

15. (canceled).

16. (currently amended) A probe selected from the group consisting of sequences designated: ~~(SEQ ID NOS 70-95 respectively in order of appearance)~~

| Oligonucleotide Name | 5' to 3' Sequence |
|----------------------|--|
| ps1 | AGC TCT TAA TCC ATT CGC TC |
| ps2 | AGC TCT cAA TCC ATT CGC TC |
| ps3 | TAA CTT CAT AAG AGC AAG CT |
| ps4 | TAA CTT CtT gAG AGC AAG CT |
| ps5 | CCG CTA ACT TCA TAA GAG CA (SEQ ID NO: 74) |
| ps6 | CCG CTA ACT TCt TgA GAG CA (SEQ ID NO: 75) |
| ps7 | GAA CCA TGC GGT TCA AAA TG |

~~ps8~~ ~~GAA CCA TGC aGT TCA AAA TG~~
~~ps9~~ ~~GAA CCA TGC GGT TCA AAA TG~~
~~ps10~~ ~~GcA CCA TGC GGT gCA AAA TG~~
~~ps11~~ ~~CAA TTT CGA ACC ATG CGG TT~~
~~ps12~~ ~~gAA TTT CGe ACC ATG CGG Tg~~
~~ps13~~ ~~GCC TTT CAA TTT CGA ACC AT~~
~~ps14~~ ~~GCC TTT gAA TTT CGe ACC AT~~
~~ps15~~ ~~CGA AGC CGC CTT TCA ATT TC~~
~~ps16~~ ~~CGA AGC CGC CTT TgA ATT TC~~
ps17 TCT AGG GTT GTC AGA GGA TG (SEQ ID NO: 86)
ps18 TCT AGG GTT tTC AGA GGA TG (SEQ ID NO: 87)
ps19 TCT GCT CCC GAA GGA GAA GC (SEQ ID NO: 88)
ps20 TCT GCc CCC GAA GGg GAA GC (SEQ ID NO: 89)
ps21 CAG CTC AGC CTT CAC GAT AA (SEQ ID NO: 90)
ps22 CAG CTC AGC CTT tAC GAT AA (SEQ ID NO: 91)
~~ps23~~ ~~CAC TGA TAC CAT TG GTA TCA~~
~~ps24~~ ~~CAC TGA TAC CAT TeG GTA TCA~~
ps25 CGGTCTTGCAGCTCTTTGTA
ps26 ATTCCAGCTTCACGCAGTC
TTT GGG CTA TGT TCC GTT TC (SEQ ID NO: 126) and
TTT GGG CTA GAT TCC GTT TC (SEQ ID NO: 127).

17. (original) The probe of claim 16, wherein the sequence of the oligonucleotide probe is reversed.

18. (canceled).

19. (canceled).

20. (currently amended) A diagnostic kit to detect *B. anthracis* target rRNA in a sample, the diagnostic kit comprising:

- (a) a microchip that comprises at least one oligonucleotide probe that distinguishes *B. anthracis* I from other closely related microorganisms, wherein the oligonucleotide is selected from the group consisting of

CCG CTA ACT TCA TAA GAG CA (SEQ ID NO: 74),
CCG CTA ACT TCt TgA GAG CA (SEQ ID NO: 75),

TCT AGG GTT GTC AGA GGA TG (SEQ ID NO: 86),
TCT AGG GTT tTC AGA GGA TG (SEQ ID NO: 87),
TCT GCT CCC GAA GGA GAA GC (SEQ ID NO: 88),
TCT GCc CCC GAA GGg GAA GC (SEQ ID NO: 89),
CAG CTC AGC CTT CAC GAT AA (SEQ ID NO: 90),
CAG CTC AGC CTT tAC GAT AA (SEQ ID NO: 91),
TTT GGG CTA TGT TCC GTT TC (SEQ ID NO: 126),
TTT GGG CTA GAT TCC GTT TC (SEQ ID NO: 127); and

- (b) a method for detecting hybridization between the at least one probe and the target rRNA by which hybridization, *B. anthracis* is detected.

21. (withdrawn) A method for taxonomically classifying *B. cereus* groups, said method comprising:

- (a) developing strain- and subgroup-specific signature profiles of 16S and 23S rRNA sequences for *B. cereus* group isolates; and
- (b) using the signature profiles to construct phylogenetic trees in order to classify the various *B. cereus* group isolates.

22. (canceled).